

## **An Empirical Study on the Relationship between Accounting Conservatism and Cost of Equity Capital — Evidence from China**

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**Abstract:** This article investigates the relationship between accounting conservatism and the cost of equity capital. Based on a sample of Chinese listed enterprises on Shenzhen and Shanghai Stock Exchange from 2011 to 2015, we find that accounting conservatism generally exists in China's listed companies, and the higher the degree of accounting conservatism, the smaller the information risk faced by investors, and the required investment rate of return will be reduced, resulting in a lower cost of equity capital.

**Key words:** accounting conservatism; cost of equity capital; PEG model

### **1 Literature Review**

#### **1.1 Accounting conservatism and its measurement**

Accounting conservatism, also known as the principle of prudence, is one of the basic principles of accounting. Basu (1997) defines the conservatism from the perspective of the net profit and loss account as the following: in the case of accounting, the recognition of the accounting surplus (good news) that may cause the increase in the stock return in the current period is slower than that of the event (bad news) that may cause the stock return to decrease in the current period.

It is precisely Basu's(1997)change of the definition of accounting conservatism from the amount of profit and loss to the timing measurement of profit and loss, that lead the empirical study of accounting conservatism into a new climax. To more accurately examine the differences of the degree of conservatism among different companies, we use the model proposed by Khan & Watts to calculate the firm's conservatism, and use the C-Score value to represent the firm's conservatism.

#### **1.2 Cost of equity capital and its measurement model**

Equity capital cost is one of the core concepts of capital market and a key aspect of corporate financial management. Many kinds of literature show that Chinese capital market strongly preferred equity financing, thus making the equity capital cost become the most concerned cost for listed company when doing equity financing.

There are many ways to measure the cost of equity capital. Mao et al. measured and evaluated the CAPM model, the Fama-French three-factor model, the GIs and the PEG model, and considered that the PEG model was better able to capture the influence of the risk factors when the time series variance was relatively large. With the development of capital market in China, more and more financial analysts have released the profit forecast data of listed companies, paving the way for estimating capital cost of equity by using PEG model (Eason, 2004).

## 2 Hypothesis Development

### 2.1 The existence of accounting conservatism

Because the performance of earnings management is similar to accounting conservatism, leading some scholars to hold that China's capital market does not exist accounting conservatism.

But many other scholars, such as Mao's (2009) found that the earnings management of the loss listed company is not the only cause of the accounting conservatism for the entire financial market. Therefore, before further examining the impact of accounting conservatism on the cost of equity capital, we must first use the loss balance as a control variable in the model to test the existence of accounting conservatism. So we made the first hypothesis:

H1: Accounting conservatism exists in Chinese listed companies and is not the result of loss companies' earnings management.

### 2.2 The relationship between accounting conservatism and cost of equity capital

From the perspective of the signal transfer theory, accounting conservatism can reduce the information asymmetry between investors and listed companies, thus reducing the investment risk and the cost of equity capital. And then according to the management salary incentive contract, accounting conservatism can reduce managers' profit behavior, thus reducing the investment risk and reducing the cost of capital. We thus propose the following hypothesis:

H2: Accounting conservatism is negatively related to the company's equity capital cost.

## 3 Research Design

### 3.1 Sample design

The companies selected for this study are A-shares companies listed on the Chinese Shanghai Stock Exchange and Shenzhen Stock Exchange from 2011 to 2015. We arrived at our final set of firms based on the following procedures. Financial and insurance companies are excluded from the final sample because of their specific financial characteristics and financial statements. According to previous research, we exclude companies flagged with ST and \*ST, firms with incomplete data and abnormal data. Finally, our sample is based on the data of 1599 firm-year observations from 2011 to 2015. The data for this study was gathered from the China Stock Market and Accounting Research (CSMAR) database.

### 3.2 Measuring accounting conservatism

We used the following specification of earning-return reverse regression model as the proxy for accounting conservatism (Basu, 1997), as shown in Eq. (1):

$$EPS_{i,t} / P_{i,t-i} = \beta_0 + \beta_1 DR_{i,t} + \beta_2 R_{i,t} + \beta_3 DR_{i,t} * R_{i,t} + \sigma \quad (1)$$

To validate Hypothesis 2 in the following formula, we referred to Kan & Watts (2009)'s proposed algorithm for the corporate level of accounting conservatism, added the SIZE, MIB, and LEV to the Basu model to estimate the firm's accounting conservatism, as shown in Eq. (2), (3), (4) :

$$G\_Score = \beta_2 = \mu_1 + \mu_2 SIZE + \mu_3 MTB + \mu_4 LEV. \quad (2)$$

$$C\_Score = \beta_3 = \lambda_1 + \lambda_2 SIZE + \lambda_3 MTB + \lambda_4 LEV. \quad (3)$$

$$\begin{aligned} EPS_{i,t} / P_{i,t-i} = & \beta_0 + \beta_1 DR_{i,t} + (\mu_1 + \mu_2 SIZE + \mu_3 MTB + \mu_4 LEV) R_{i,t} + \\ & (\lambda_1 + \lambda_2 SIZE + \lambda_3 MTB + \lambda_4 LEV) DR_{i,t} * R_{i,t} + \sigma. \end{aligned} \quad (4)$$

SIZE is the natural logarithm of total assets at the end of the year; MTB is the carrying value; LEV is the debt asset ratio; C\_Score is the value of the firm's accounting conservatism.

### 3.3 Measuring cost of equity capital

We used the PEG model (Eason, 2004) to estimate the cost of equity capital. The formula is as shown in Eq. (5) :

$$R_{PEG} = \sqrt{\frac{EPS_2 - EPS_1}{P_0}} \quad (5)$$

### 3.4 Control variables

Since the quality of information disclosure may be affected by other factors, our model includes a set of independent control variables. The control variables are ROE, EG, LIQ, ITR, TAR. Specific definitions of the variables are given in Table1 :

**Table 1.**Control variables

Variables	Symbol	Definition
Return on equity	ROE	net income/shareholder equity
Growth Rate	EG	(operating income for the year - operating income for the previous year)/operating income for the previous year
Current Ratio	LIQ	current assets/total assets
Asset Turnover	ITR	net sales revenue/ average total assets
Receivables Turnover Ratio	TAR	net receivable sales/ average net receivables

## 4 Empirical analysis

### 4.1 The existence of accounting conservatism

To eliminate the possible impact of the loss, we tested the authenticity of conservatism before testing this hypothesis2. Referring to Zhou Xuefeng and Huang Xiaoyun (2011), the control variable LOSS representing loss is added to the Basu model (1). LOSS is the control variable, if ROA > 0, then LOSS = 0; otherwise, LOSS = 1.  $b_6$  reflects the amount of change in the degree to which the loss company reflects the bad news.

$$\begin{aligned} EPS_{i,t} / P_{i,t-i} = & b_0 + b_1 DR_{i,t} + b_2 R_{i,t} + b_3 DR_{i,t} * R_{i,t} + b_4 LOSS_{i,t} + b_5 LOSS_{i,t} * R_{i,t} \\ & + b_6 LOSS_{i,t} * DR_{i,t} * R_{i,t} + \sigma. \end{aligned} \quad (6)$$

**Table2.** Basu model regression results and control variable-added Basu model regression results

	<b>Model (1)</b>			<b>Model (6)</b>		
<b>Variables</b>	<b>Coefficient</b>	<b>t-Statistic</b>	<b>Prob.</b>	<b>Coefficient</b>	<b>t-Statistic</b>	<b>Prob.</b>
C	44.79448	26.56593	0.00000	111.9417	8.5255	0.00000
DR	0.569117	5.386932	0.00000	1.8282	2.7198	0.0066
DR*R	0.044271	6.35684	0.00000	0.1387	2.6584	0.0079
LOSS	–	–	–	–0.5575	–1.5621	0.1185
LOSS*R	–	–	–	–0.1084	–1.9366	0.0559
LOSS*DR*R	–	–	–	–0.0407	–1.3687	0.1713
R <sup>2</sup>	0.187531			0.534076		
F 值	120.7783			18.46001		

The results of the two models are shown in Table 2. The coefficients of DR\*R in models (1) and (6) are significantly positive at the 1% level. This means that both the full sample company and the profit company respond to the "bad news" more timely than "good news." The control of the loss Enterprise did not have an impact on accounting conservatism. In model (6), the coefficient of LOSS\*DR\*R is -0.0407, but not significant, indicating that loss is not the reason of all data's conservatism. That proves hypothesis 1.

## 4.2 Accounting conservatism and cost of equity capital

### 4.2.1 Descriptive Statistics

After confirming the real existence of accounting conservatism, we began to study how accounting conservatism affects the cost of equity capital. According to formula 2 and formula 3, we got the accounting conservatism of each listed company, and applied the descriptive statistics to the variables in the formula:

**TABLE 3.** Descriptive Statistics

Year	Max	Min	Mean	Median	Std. Dev	N
2011	0.233399	-0.10286	0.07125	0.108515	0.334648	396
2012	0.179861	-0.12872	0.080918	0.081244	0.258742	284
2013	0.107008	-0.26465	0.093534	-0.02973	0.228675	271
2014	0.12148	-0.13614	0.10306	0.09569	0.24434	234
2015	0.158233	-0.14641	0.105311	0.0987	0.16447	399
all	0.233399	-0.14641	0.09522	0.10398	0.254855	1584

Table3 shows the main variables' descriptive statistics. The value of C \_Score has increased year by year, which indicates that the degree of accounting conservatism is increasing. Considering that its standard deviation is 0.254855, C \_Score doesn't differ a lot among companies. The mean is closer to the maximum, indicating that in the sample's equity cost is stable.

**TABLE 4.** Correlation Coefficients Matrix of Variables

Probability	R <sub>PEG</sub>	C_Score	ROE	EG	LIQ	ITR	TAR
R <sub>PEG</sub>	1.000000						
C_Score	-0.269***	1.000000					
ROE	-0.0014*	-0.062**	1.000000				
EG	-0.161***	0.065***	0.036*	1.000000			
LIQ	-0.081***	-0.018	0.027	-0.141***	1.000000		
ITR	0.044*	-0.0127	-0.0194	-0.0898***	-0.460***	1.000000	
TAR	-0.02**	0.0012	0.0249	0.225***	-0.526***	0.526***	1.000000

Note: \*Significant at the 10% level ;. \*Significant at the 5% level ;\*\*\* Significant at the 1% level

In Table 4, we provide the results of the Pearson correlation analysis of the main variables. It can be seen from the table that the Pearson coefficients between the variables are less than 0.5, so there are no multiple linearities between the control variables. The relationship between accounting conservatism and cost of equity capital is significantly negative.

#### 4.2.2 Regression Result

**Table5 .**Regression Result

	PEG Model			CAMP Model		
Variable	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
C_Score	-0.1499***	-15.4442	0	-0.120***	-4.73	0
ROE	-2.611***	-14.358	0	-0.839***	-3.11	0.002
EG	-1.632**	-2.7307	0.0278	-0.115***	-0.38	0.005
LIQ	-0.106**	-2.4975	0.021	-0.131*	-0.75	0.052
ITR	-0.062	-1.6446	0.6197	-0.308	-0.27	0.123
TAR	0.0038	1.2716	0.2122	0.0410	1.18	0.238
	R-squared	F-statistic	Prob	R-squared	F-statistic	Prob
	0.787531	120.7783	0	0.652	64.264	0

Note: \*Significant at the 10% level ;. \*Significant at the 5% level ;\*\*\* Significant at the 1% level

We used the PEG Model to examine the relationship between accounting conservatism and cost of equity capital. We also used the CAPM model to validate the results. Table 5 presents the regression results. And both the two regression results show that independent variable (C\_Score) has passed the test and is negatively correlated with the dependent variable (cost of equity capital), showing that the relationship between accounting conservatism and cost of equity capital is negative which supports hypothesis2.

What's more, consistent with expectations, the cost of equity capital is negatively correlated with firm profitability, growth, liquidity. While the regression coefficient of asset turnover and accounts receivable turnover is not significant at the 10% level,so we can't prove the relationship between these two indicators and the cost of equity capital. Perhaps China's capital market is not mature enough to study their relationship with the cost of equity capital.

## 5 Conclusion

In this study, we investigate the relationship between accounting conservatism and cost of equity capital. Based on the signaling theory and the risk management theory, we put forward two research hypotheses. Using Basu Model, we discover accounting conservatism exists in Chinese listed companies and is not the result of loss companies' earnings management. The CAPM Model and the PEG Model can calculate sample companies' accounting conservatism and equity capital cost separately. The regression results show that accounting conservatism is negatively related to equity capital cost. This results in support accounting conservatism's positive role.

## References

- [1] Garcia L, Garcia O B, Penalva F. Conditional conservatism and cost of capital[J]. Review of Accounting Studies, 2011, 16(2), 247-271.
- [2] Manuel J L, Penalva F. Conditional conservatism and cost of capital[J].Review of Accounting Studies, 2011, 16(2).
- [3] Cao Y, Myers J N, Omer T C. Company reputation and the cost of equity capital[J]. Review of Accounting Studies, 2014(5) :326-384.
- [4] Cullinan C P, Wang F, Wang P, et al. Ownership structure and accounting conservatism in China[J]. Journal of International Accounting Auditing & Taxation, 2012, 21(1):1–16.
- [5] Khan M, Watts R L. 2009. Estimation and empirical properties of a firm—year measure of accounting conservatism[J]. Journal of Accounting and Economics, 2009 .(48) :132-150.
- [6] Habib, A. & Hossain, M. Accounting conservatism, environmental uncertainty and the capital structure, Corporate Ownership and Control, 2013, 11(1), 123-135.
- [7] Gang Li, Wei Zhang, Yanyan Wang, "an empirical study of earnings information quality and cost of equity capital", audit & economy research, vol. 9, pp. 57-62, 2008.
- [8] R. La Fond, L.W. Ross, "The Information Role of Conservatism", The Accounting Review, vol. 83, no. 2, pp. 447-478, 2008
- [9] Kung, F.-H., Chung, C.-L., & James, K. The effects of corporate ownership structure on earnings conservatism: Evidence from China. Asian Journal of Finance and Economics, 2010, 2, 47 – 67.
- [10] Ahmed, A. S., & Duellman, S. Accounting conservatism and board of director characteristics: An empirical analysis. Journal of Accounting and Economics, 2007, 43, 411–437.
- [11] Zhang C, Wu S. Notice of Retraction Accounting conservatism and cost of equity capital — Evidence from China's security market[C]// International Conference on Business Management and Electronic Information. IEEE, 2011:430-434.